

## REMARKS

Formal drawings were filed in this application on June 12, 2000. Acknowledgment of receipt and approval of the formal drawings is respectfully requested. Related to the submission of formal drawings, the specification has been amended to replace "Figure 2a" and "Figure 2b" with -Figure 2A- and -Figure 2B-, respectively, as those figures are now shown in the drawings.

The specification has also be amended to update the status of the cited copending application to Andrew Senior, one of the inventors in this patent application. That application has now issued as U.S. Patent No. 6,400,836 and is assigned to a common assignee herewith.

Other minor amendments have been made to the specification to correct errors in grammar and punctuation. No new matter has been added.

Claims 1 to 27 remain in the application. In the Office Action mailed March 7, 2003, the Examiner required restriction between claims 1-13 and claims 14-27, which restriction requirement was traversed in the Amendment filed on April 7, 2003. It is noted with appreciation that in view of the amendments, the restriction requirement has been withdrawn.

Claims 1 to 27 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,400,836 to Senior. This rejection is respectfully traversed for the reason that Senior does not show or teach the claimed invention.

It is noted first of all that the copending application on which the patent to Senior issued was cited in this application as originally filed. The invention disclosed and claimed in this application is based on the earlier filed application; however, contrary to the Examiner's assertion, the patent to Senior does not disclose the subject invention. Specifically, the Examiner points to column 5, lines 50-67, of Senior as disclosing calculating correlation between attributes in each fingerprint. The word "correlation" is not used in this section. This is a main aspect of the presently claimed invention and was not included in the invention of the earlier patent to Senior. As mentioned on page 2, lines 17 to 24, of the present

*matching  
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application, it was found through use that the invention in the earlier Senior patent could be improved.

In the Senior patent, passive authentication is performed by acquiring fingerprints from the pointing device on a periodic basis and comparing the acquired fingerprints to stored data. Such fingerprints are effectively "static" and subject to replay attacks. The claimed invention combats such replay attacks by active acquisition of dynamic fingerprints, either prompted by the computer system or previously stored as a "password" by the user. The way in which the system combats replay attacks is shown in the flow charts of Figures 5 and 6. Figure 5 shows the operation of validating a user by prompting the user for a fingerprint and by requiring the user to make finger movements (on the scanner or by re-application of the finger to the scanner) to prevent replay attacks. Figure 6 shows the operation of validating a user by prompting for a "gestural password" where, in addition to presenting the finger to the scanner, the user must move the finger in a predefined, user-dependent, secret manner to prove that the user possesses the secret knowledge of this sequence. These processes are dynamic and active, as opposed to the static and passive processes disclosed in the Senior patent.

Claim 1 is directed to a method for authenticating a user and for input of control information for an electronic device and recites the steps of "acquiring through a scanner *at least two fingerprint images of a finger*" and "computing image correlations between the acquired fingerprint images" (emphasis added). This allows for "extracting from each said fingerprint image at least one contact parameter, calculated by the step of computing image correlations, the contact parameter being determined between image attributes in each said fingerprint image" (emphasis added). The fingerprint images and at least one contact parameter are used to authenticate the user and to control said electronic device. This is not the process disclosed in the patent to Senior. Similar limitations are to be found in each of the other independent claims 14, 22 and 23.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1 to 27 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to IBM Attorney's Deposit Account No. 50-0510.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'C. Lamont Whitham', is written over the typed name.

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